gaps wherein there is one gap between each of two adjacent electrodes and each of said gaps has a length greater than the diffusion layer formed during operation of the sensor;
said method comprising the etch-back technique.

33. A photolithographic method of making a microband electrode array sensor useful for detecting the presence and measuring the concentration of analytes in a sample, sais sensor comprising a layer of insulating material having a first edge aligned with said first edge of said substrate; and
a plurality of microband electrodes between said substrate
said microband electrodes having a surface exposed at said first edges of said substrate and said insulating layer; and said insulating layer forming a plurality of gaps wherein there is one gap between each of two adjacent electrodes and each of said gaps has a length greater than the diffusion layer formed during operation of the sensor;
said method comprising the lift-off technique.

34. A method of utilizing a microband electrode array sensor of the kind comprising:

a substrate having a first edge;

a layer of insulating material, on top of said substrate, said layer of insulating material having a first edge;

said first edge of said substrate and said first edge of said insulating material aligned to form a single edge;

a plurality of microband electrodes between said substrate and said layer of insulating material, a surface of each of said microband electrodes exposed at said single edge; and

a plurality of gaps, one gap between each of two adjacent microband electrodes and each of said gaps having a length great enough that no substantial overlap of diffusion layers occurs; which method comprises the steps of:

(a) contacting said sensor with a sample suspected of containing an analyte; and

(b) scanning the voltage from a negative voltage to a positive voltage such that the scanned voltage is of a range where said analyte should be oxidized or reduced at said microband electrode.

35. The method of claim 34 wherein the exposed surface of each of said microband electrodes has a width less than about 25 micrometers and a thickness less than about 25 micrometers.

36. A method of utilizing a microband electrode array sensor of the kind comprising a substrate having a first edge;

a layer of insulating material on top of said substrate, said layer of insulating material having a first edge;

said first edge of said substrate and said first edge of said insulating material aligned to form a single edge;

a plurality of microband electrodes between said substrate and said layer of insulating material, a surface of each of said microband electrodes exposed at said single edge; and

a plurality of gaps, one gap between each of two adjacent microband electrodes and each of said gaps having a length great enough that no substantial overlap of diffusion layers occurs ;said method comprising the step of:

(a) contacting said sensor with a sample suspected of containing an analyte; and

(b) performing anodic stripping voltammetry..

37. The method of claim 36 wherein the exposed surface of each of said microband electrodes has a width less than about 25 micrometers and a thickness less than about 25 micrometers.

38. A method of detecting the presence and measuring the concentration of analytes in a sample, the method comprising the steps of:

(a) contacting a microband electrode array sensor of the kind comprising:

a substrate having a first edge;
a layer of insulating material on top of said substrate, said layer of insulating material having a first edge;
said first edge of said substrate and said first edge of said insulating material aligned to form a single edge;
a plurality of microband electrodes between said substrate and said layer of insulating material, a surface of each of said microband electrodes exposed at said single edge; and
a plurality of gaps, one gap between each of two adjacent microband electrodes and each of said gaps having a length great enough that no substantial overlap of diffusion layers occurs;

with a sample suspected of containing an analyte.

39. The method of claim 38 wherein the analyte is detected by performing cyclic voltammetry using the microband electrode array sensor

40. The method of claim 38 wherein the analyte is detected by performing stripping voltammetry using the microband electrode array sensor.

41. The method of claim 38 wherein the analyte is detected by:

(a) applying an electrical potential to the sensor; and
(b) measuring the electrical current flowing through the sensor.

42. The method of claim 38 wherein the analyte is detected by:

(a) applying a positive voltage for a sufficient time to allow for an analyte to be oxidized from the microband electrode; and

(b) scanning the voltage in a negative direction to reduce the plated analyte off the microband electrode.

43. The method of claim 38 wherein the analyte is detected by:

(a) applying a negative voltage for a sufficient time to allow for an analyte to be reduced from the microband electrode; and

(b) scanning the voltage in a negative direction to oxidize the plated analyte off the microband electrode.

44. The method of claim 38 wherein the sample is contacted with a a plurality of layers of microband electrode array sensors separated from each other by insulating material.

45. The method of claim 44 wherein multi-layer microband electrode sensor of claim 14 wherein each of said substrates is planar.

46. A method for performing electrochemical measurements on a sample comprising the step of contacting a sample suspected of containing an analyte with a microband electrode array sensor of the kind comprising:

a substrate having a first edge;
a layer of insulating material on top of said substrate, said layer of insulating material having a first edge;
said first edge of said substrate and said first edge of said insulating material aligned to form a single edge;
a plurality of microband electrodes between said substrate and said layer of insulating material, a surface of each of said microband electrodes exposed at said single edge; and
a plurality of gaps, one gap between each of two adjacent microband electrodes and each of said gaps having a length great enough that no substantial overlap of diffusion layers occurs; and

wherein the sample is integrated into a channel.

47. The method of claim 46 wherein the analyte is detected by performing cyclic